


COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY

Subject: Water Guidance Memo No. 10-2004, Revision 1
Implementation of Extended Buffers, Coordination of Health Complaints and
Waiving of Buffers at Biosolids Land Application Sites

To: Regional Directors

From: Ellen Gilinsky, Ph.D., Director, Water Division 

Date: January 5, 2011

Copies: Deputy Regional Directors, Regional Water Permit Managers, Regional Water
Compliance Managers, James Golden, Rick Weeks, Neil Zahradka, and Fred
Cunningham

Summary:

This guidance addresses the implementation of extended buffers at biosolids land application sites in response to citizen requests, as well as coordination with the Virginia Department of Health (VDH) concerning health related complaints received regarding biosolids land applications. The waiving of certain buffers by property owners and residents is also addressed. As regulatory action is currently underway to amend the regulations pertaining to land application of biosolids, the procedures outlined in this guidance may be revised as a result of any regulatory changes.

Electronic Copy:

An electronic copy of this guidance in PDF format is available for staff internally on DEQNET, and for the general public on DEQ's website at: <http://www.deq.virginia.gov/waterguidance/>.

Contact Information:

Please contact Christina Wood, Office of Land Application Programs at (804) 698-4263 or christina.wood@deq.virginia.gov with any questions you have regarding the application of this guidance.

Disclaimer:

This document is provided as guidance and, as such, sets forth standard operating procedures for the agency. However, it does not mandate any particular method nor does it prohibit any particular method for the analysis of data, establishment of a wasteload allocation, or establishment of a permit limit. If alternative proposals are made, such proposals should be reviewed and accepted or denied based on their technical adequacy and compliance with appropriate laws and regulations.

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I. Authority

DEQ issues permits for the land application of biosolids in accordance with the Virginia Pollution Abatement (VPA) Permit Regulation, 9VAC25-32-310 through 760 and the Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation, 9VAC25-31-420 through 720.

By regulation, DEQ may extend buffers for occupied dwellings and property lines for all land application sites.

9VAC25-32-100-6 states:

Where, because of site-specific conditions . . . the department determines that special requirements are necessary to protect the environment or the health, safety or welfare of persons residing in the vicinity of a proposed land application site, the department may incorporate in the permit . . . reasonable special conditions regarding buffering, transportation routes, slope, material source, methods of handling and application, and time of day restrictions exceeding those required by this regulation.

9VAC25-32-490 states:

[T]he Board may impose standards and requirements that are more stringent than those contained in this regulation when required to protect public health or prevent nuisance conditions from developing.

9VAC25-32-560.B.3.d.(2) allows extending the buffer setback to 400 feet or more from occupied dwellings:

For applications where surface applied biosolids are not incorporated, the Department (or the local monitor with approval of the department) may require as a site-specific permit condition, extended buffer zone setback distances when necessary to protect odor sensitive receptors. When necessary, buffer zone setback distances from odor sensitive receptors may be extended to 400 feet or more and no biosolids shall be applied within such extended buffer zones. In accordance with 9VAC25-32-100 and 9VAC25-32-490, the board may impose standards and requirements that are more stringent when required to protect public health and the environment, or prevent nuisance conditions from developing, either prior to or during biosolids use operations.

II. Background

On January 1, 2008, regulatory oversight for land application of biosolids (treated sewage sludge) was transferred from VDH to DEQ. This transfer occurred at the direction of the 2007 General Assembly, which passed legislation requiring that all land application of biosolids in the Commonwealth of Virginia be permitted under either a VPA permit or VPDES permit. A Biosolids Expert Panel was also created by resolution to study the impact of land application of biosolids on human health and the environment.

In the course of administering the biosolids program, DEQ receives complaints and concerns regarding health related issues associated with the spreading of biosolids. As VDH holds primary responsibility for health related issues in the Commonwealth, DEQ requested and received specific recommendations from VDH regarding health related investigations and appropriate buffer requirements.¹

In response to DEQ's request, VDH outlined their historical approach and recommended alternatives that might be more effective to implement. When VDH administered the biosolids program, VDH recommended extended buffers in cases where vulnerable persons in close proximity to application sites were identified through a medical consultation process. As an alternative, VDH has recommended to DEQ that buffer distances from residences and publicly accessible property lines be doubled at all sites; this would provide an abundance of caution in response to citizen concerns and make administration of the program more practical.

Guidance to implement the extension of all property line and dwelling buffers was drafted and placed on Town Hall for public comment. Based on comment, it was determined that the buffer issue should be discussed by the technical advisory committee (TAC) that was formed to modify the VPA and VPDES regulations for biosolids. The TAC suggested that the default buffer should remain at 200 feet for occupied dwellings, but that the buffer should be increased to 400 feet in response to any request for an increased buffer from the owner or resident of that dwelling. Note that this buffer extension would not require individual evaluation by VDH.

Therefore, while VDH continues to assert that the existing regulatory buffers of 100 feet from property lines and 200 feet from occupied dwellings provide adequate protection to the majority of the public, buffers of 200 feet from private property lines and 400 feet from occupied dwellings will be implemented whenever requested to minimize the need for individual consideration of health complaints related to the spreading of biosolids. In addition, these extended buffers will be implemented at all publicly accessible sites adjacent to biosolids land application sites. VDH has also developed a new process by which they will handle requests for individual consideration above and beyond these extended buffers.

It is noted that 9VAC25-32-560.B.3.d.(2) also includes a provision that the board may add other requirements in order to prevent nuisance conditions from developing. The term "nuisance" is not defined in the regulation, and is not used in the statute authorizing the regulation. "Nuisance" effects may be random, subjective, temporary and dependent on the sensitivities of a particular

¹ Virginia Department of Health; correspondence from James Burns; May 2, 2008.

individual in comparison to identifiable and genuine health effects. To assist in the interpretation and application of the term “nuisance,” DEQ has associated the term with potential health effects that are identifiable in order to provide an objective, predictable regulatory requirement.

Nuisance related to biosolids is often associated with odor, which may be a result of the level of vector attraction reduction achieved. Biosolids generators and applicators must comply with the vector attraction reduction requirements in the regulations, which include biosolids treatment options, in order to reduce the potential for biosolids land application to generate nuisance conditions. Due to the difficulty in applying any standard of reasonableness to establishing a buffer distance in an attempt to prevent nuisance conditions, biosolids permits will typically rely on vector attraction reduction to prevent nuisance.

III. Implementation of Extended Buffer Requirements

1. Who May be Granted Extended Buffers:

- a. Increased buffers from occupied dwellings shall be implemented at the request of the owner or resident of a dwelling in the vicinity of a biosolids land application site.
- b. Increased buffers from property lines shall be implemented at the request of the owner or resident of the property.
- c. Increased buffers from occupied buildings shall be implemented at all publicly accessible properties that adjoin biosolids land application sites.
- d. Increased buffers from property lines shall be implemented at all publicly accessible properties that adjoin biosolids land application sites.

2. Private Property

- a. Whenever an owner or resident of an occupied dwelling in the vicinity of a land application site requests an extended buffer from that dwelling, a buffer of 400 feet from that dwelling will be implemented.
- b. Whenever an owner or resident of a property in the vicinity of a land application site requests an extended buffer from the property line, a buffer of 200 feet from that property line will be implemented.
- c. The request may be made during comment periods prior to permit issuance or after permit issuance but prior to land application. The citizen request may be made to DEQ via telephone, fax, email, personal conversation, written letter or other available technology. The request will be documented by the DEQ staff member receiving the request in accordance with section III.4 of this memo. A health concern or odor complaint is not required in order to implement the extended buffers.
- d. The DEQ staff member will notify the citizen that the buffer(s) has been extended. This notice will be provided based on the manner in which the request was received; e.g. a citizen making a telephone request may be notified during the telephone conversation, or if a written request is received during a public comment period, an email or letter should be the mode of DEQ response. The notice to the citizen shall include the distance of each extended buffer and the buffer ID number assigned to the buffer.
- e. The buffer extension is granted to the owner(s) or resident(s) of the property, rather than the property itself. If the ownership changes or all the individuals

living in the home move from the property, the buffer extension will be terminated.

- f. If the citizen is not satisfied with the extended buffer implemented by DEQ, that citizen may request an individual assessment from the local Health District Director as described in Section 5 below. In the event that a citizen requests an individual assessment regarding a site with an active permit, the land application of biosolids may continue under the following conditions while the health investigation is conducted:
 - i. Extended buffers of 400 ft from a residence and 200 ft from the property line are implemented;
 - ii. DEQ has verified compliance with all regulatory requirements at the site; and
 - iii. The Health Commissioner has not issued an emergency order to cease operation of the biosolids use activity pursuant to [§32.1-13](#) of the Code of Virginia.
- g. Whenever an owner or resident of a property or occupied dwelling in the vicinity of a land application site has questions or concerns regarding the land application of biosolids, DEQ staff shall explain the procedures for obtaining an extended buffer for the dwelling or property line as outlined above in a. – d.

3. Public Property

- a. For any biosolids land application site that adjoins a publicly accessible site with an occupied building, a buffer of 400 feet from that occupied building will be implemented.
- b. For any biosolids land application site that adjoins a publicly accessible site, buffers of 200 feet from the property line of that publicly accessible site shall be implemented.
- c. A property will be considered to be publicly accessible if it is open to the general public and routinely accommodates pedestrians (e.g., schools, hospitals, parks, nature trails, businesses, sidewalks, etc.). Temporary structures, public roads or similar thoroughfares are not considered publicly accessible.
- d. Buffer extensions shall be documented on the site maps submitted with the permit application for any publicly accessible property that exists at that time. New property line buffer extensions may be added to the permit at any time for new publicly accessible properties or for those that were included in permit applications submitted prior to the issuance of this guidance.

4. Documenting a Buffer Extension

- a. DEQ staff will notify the permit holder of the extended buffer(s) and the permit holder shall identify the extended buffer(s) on the site map maintained in the site booklet that is used by the land applier. The permit holder shall submit the updated site map to the region to include in the regional copy of the site booklet.
- b. DEQ staff will enter the buffer extension(s) into DEQ's Biosolids Database using the form entitled "Citizen_Extended_Buffer."
 - i. Using the switchboard, select "Citizen Extended Buffer", "Add – Citizen Extended Buffer"
 - ii. Data entry shall include:
 - (1) name and 911 address, including city, state and zip code, of the resident receiving the increased buffer,

- (2) effective date of the increase,
- (3) County (select from drop down list),
- (4) name of the DEQ staff member that granted the extension (select from drop down list),
- (5) size and type of buffer – residence or property line (select from drop down list), and
- (6) DEQ Site ID number of each of the land application fields associated with an extended buffer.

For sites/fields that have not been assigned a DEQ Site ID number, the permit number(s) and a site identifier, such as the permit holder's field number(s), must be entered in the "Memo" data field.

- (7) A Buffer ID number will be automatically generated when the data is entered
- c. DEQ staff will enter the location of the residence where the extended buffer is granted into DEQ's Biosolids GIS database by marking a point on the location of the dwelling. The Buffer ID for that site, created in 4.b.ii.(7) above, shall be entered into the attributes of Citizen Extended Buffer, under Buffer_ID.
- d. No health related information concerning any individual requesting a buffer shall be collected by DEQ or documented in DEQ files or databases.

5. Individual Health Assessments

Property owners and/or residents in the vicinity of land application sites who assert that they need additional protection beyond the increased buffers specified in Section 2 above must contact the local Health District Director to request an individual assessment to determine if an extended buffer is warranted.

- a. DEQ shall provide the property owner/resident with the name and phone number of the local Health District Director for their county. This can be found at <http://www.vdh.virginia.gov/lhd/>.
- b. VDH will handle the complaint according to their internal procedures. If the property owner/resident's medical condition is not on the VDH list, the local Health District Director has been asked to request that the Biosolids Medical Review Committee be convened to make a buffer determination.
- c. The local Health District Director will inform DEQ of the outcome of the complaint and any recommendations they have for further changes to the buffer requirements.

IV. Waivers - All VDH–BUR, VPA and VPDES Permits – Existing and New

The buffer setback to property lines and occupied dwellings may be reduced or eliminated with written consent from the affected landowner/resident. If more than one buffer setback is involved, the more restrictive buffer shall apply. For instance, if the residence and drinking water well are collocated next to the field to be land applied, and the owner agrees to reduce the dwelling buffer to 50 feet, the required 100 foot buffer from the well must be maintained.

Access timing restrictions and appropriate crops must also be considered when reducing buffers. For example, the buffer could not be reduced to within 50 feet of a residence if a suitable crop is not grown within the area waived as buffer. All access restrictions would apply to the area

receiving biosolids. For example, if the area waived was a small section of pasture used for the family's goats, the goats would not be allowed back in that space for 30 to 60 days, depending on lactation.

Appendix I. Recommendation from Virginia Department of Health



COMMONWEALTH of VIRGINIA

Department of Health

P O BOX 2448
RICHMOND, VA 23218

RECEIVED

MAY 08 2008

DEQ-OD

TTY 7-1-1 OR
1-800-828-1120

May 2, 2008

James Golden, Deputy Director
Virginia Department of Environmental Quality
629 East Main Street
P. O. Box 1105
Richmond, Virginia 23218

Dear Mr. Golden:

You have asked for our guidance in responding to health concerns from citizens who live near biosolids application sites. The following recommendations are designed to provide an abundance of caution in response to citizen's concerns. There are no data indicating this increased caution is necessary, but we determined that providing these additional measures might make administering the program more practical.

We recommend that, in addition to the extending the existing buffer of 100 feet to 200 feet between all property lines at which the public may have access and any part of the application site, no application should be permitted within 400 feet of any occupied dwelling.

The practice of the Department of Health, when the biosolids program was located here, was to extend the buffer to 400 feet in situations where an individual had been identified with medical conditions that could result in increased risk¹. We found that this policy was difficult to implement, and are therefore recommending that these extended buffers be added in all situations. This should minimize the need for individual considerations.

If individuals assert that they need additional protection, we recommend that they contact the local District Health Director to request an individual assessment be performed. We would anticipate that there would be very few situations where extended buffers or other controls would be warranted.

¹ Respiratory diseases include Asthma (must require bronchodilator therapy); Chronic obstructive pulmonary disease; Emphysema and Cystic fibrosis. Immunodeficiency and immunosuppression conditions; including Chemotherapy, for two weeks before starting a course of chemotherapy and for one month after completing a course of chemotherapy, or with an absolute neutrophil count less than 1000/mm³; Organ transplant recipient, for 4 months after transplantation; HIV infected with CD4 count below 200; Primary immunodeficiency, exclusion will vary depending upon the diagnosis

Mr. James Golden
May 2, 2008
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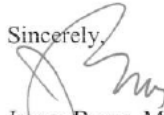
Though biosolids have been applied to land for many years without scientific evidence of harm to humans, it is not possible to make a definitive statement about the safety of biosolids. As the National Research Council's report *Biosolids Applied to Land* concludes: "There is no documented scientific evidence that the Part 503 rule has failed to protect public health. However, additional scientific work is needed to reduce persistent uncertainty about the potential for adverse human health effects from exposure to biosolids."

For many contaminants the level of exposure over time (particularly low-level and chronic exposure to multiple age groups and those with immune vulnerabilities) that can be considered 'safe' or a very low-level risk is not known and is difficult to study. Long term health effects are challenging to study and quantify due to a variety of issues. Further difficulty includes not always having knowledge of the actual contents of the sludge and a complete lack of knowledge regarding health effects for some of the contaminants that may be present and the difficult issue of the toxicology of mixtures of compounds. Class B biosolids may contain a wide variety of contaminants in addition to the 9 regulated contaminants. These include enteric bacteria, viruses, endotoxins, and parasites, organic and inorganic materials. The potential interactions of chemical contaminants with low levels of pathogens in individuals who may have an increased risk of infection due to allergic and irritant reactions that may compromise the normal barriers to infection also need to be considered. However, the physical nature of biosolids and the application process is such that very little of the material leaves the application site.

The best current conclusion is that biosolids applied in compliance with federal and Virginia standards pose very little risk to human health if applied following the applicable laws and regulations. Our recommendation in this letter further decreases that risk.

When requested by your Department, the local District Health Director will attend public meetings to assist in addressing public health concerns. If you have additional questions, please do not hesitate to contact me.

Sincerely,



James Burns, M.D., M.B.A.
Deputy Commissioner